OIPE IAP86 OCT 16 2006 PATENT & TRADEMARK OFFICE

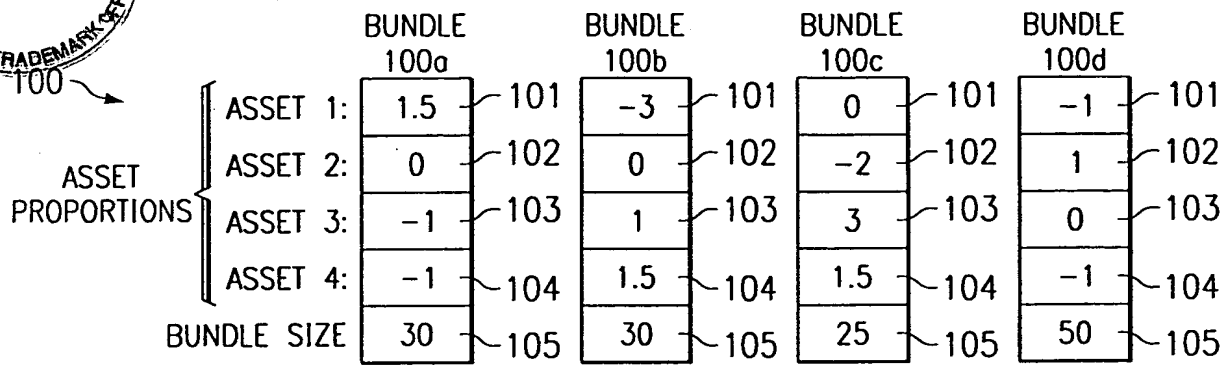


FIG. 1

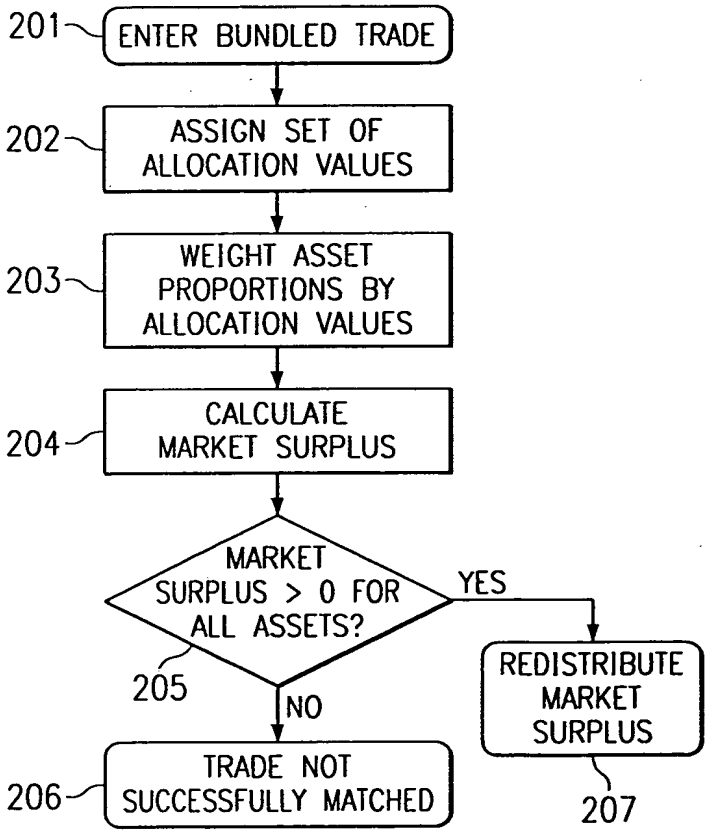


FIG. 2

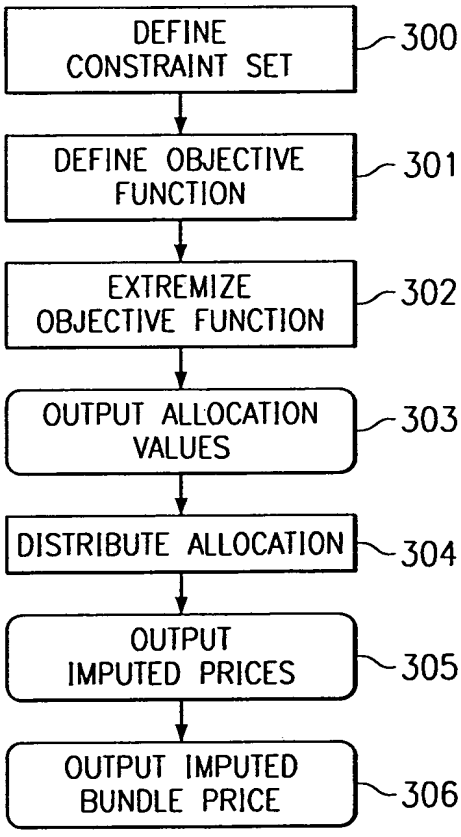


FIG. 3

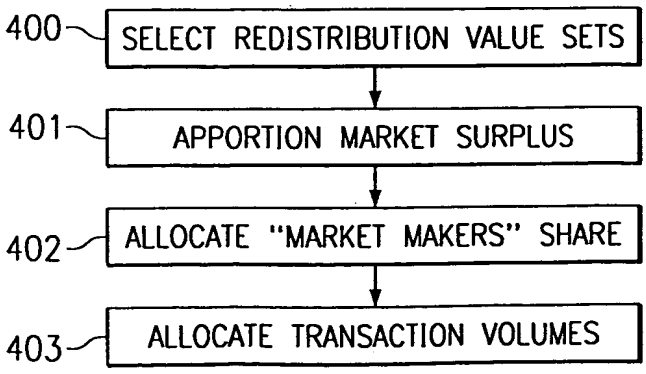


FIG. 4

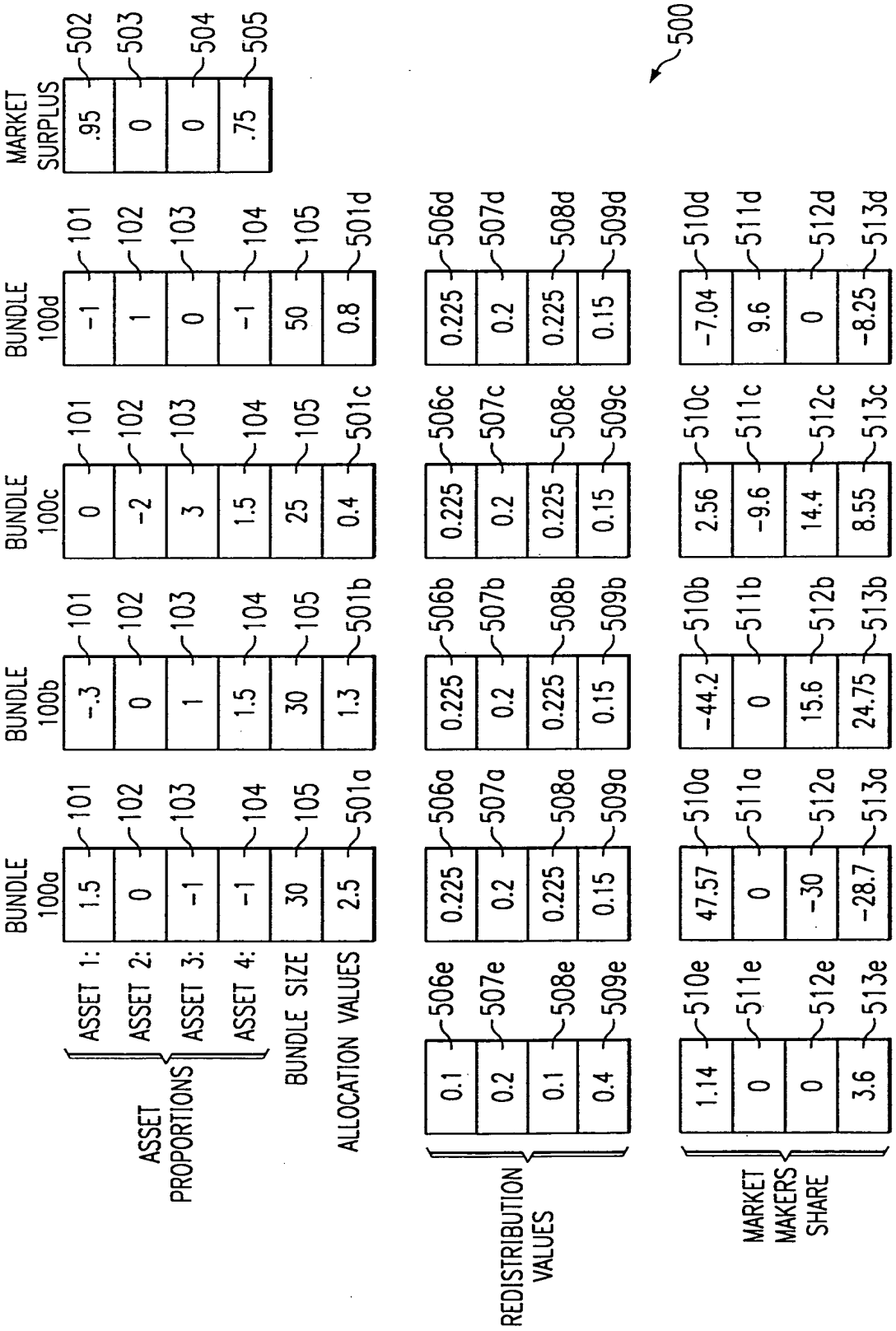

500
MARKET SURPLUS
502
503
504
505
.95
0
0
.75
BUNDLE 100d
BUNDLE 100c
BUNDLE 100b
BUNDLE 100a
101
102
103
104
105
501d
501c
501b
501a
-1
1
0
-1
50
0.8
0
-2
3
1.5
25
0.4
-.3
0
1
1.5
30
1.3
1.5
0
-1
-1
30
2.5
ASSET 1:
ASSET 2:
ASSET 3:
ASSET 4:
BUNDLE SIZE
ALLOCATION VALUES
ASSET PROPORTIONS
506d
507d
508d
509d
506c
507c
508c
509c
506b
507b
508b
509b
506a
507a
508a
509a
0.225
0.2
0.225
0.15
0.225
0.2
0.225
0.15
0.225
0.2
0.225
0.15
0.225
0.2
0.225
0.15
REDISTRIBUTION VALUES
510d
511d
512d
513d
510c
511c
512c
513c
510b
511b
512b
513b
510a
511a
512a
513a
-7.04
9.6
0
-8.25
2.56
-9.6
14.4
8.55
-44.2
0
15.6
24.75
47.57
0
-30
-28.7
MARKET MAKERS SHARE
510e
511e
512e
513e
0.1
0.2
0.1
0.4
1.14
0
0
3.6
506e
507e
508e
509e

FIG. 5

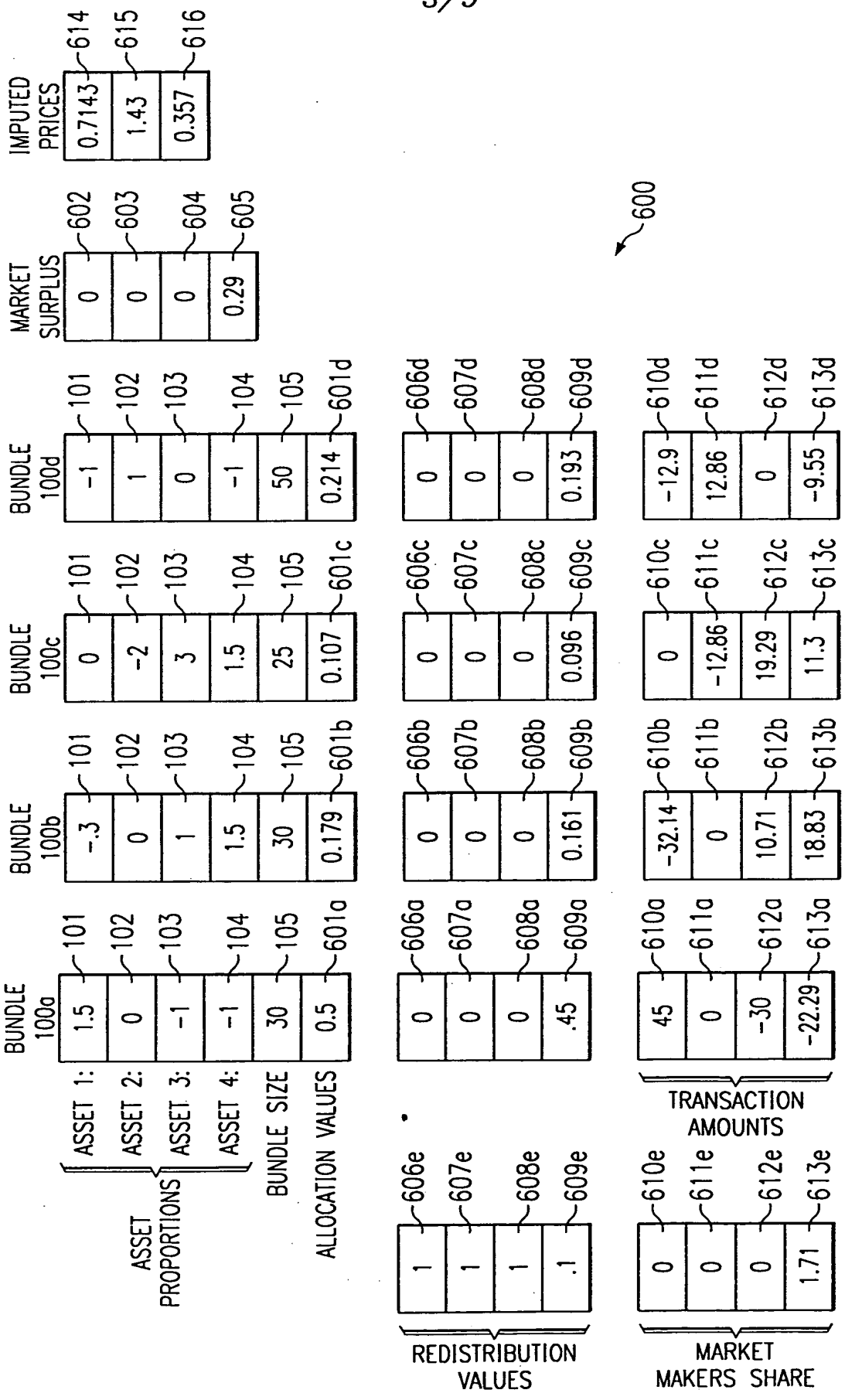

600
IMPUTED PRICES
614
615
616
0.7143
1.43
0.357
MARKET SURPLUS
602
603
604
605
0
0
0
0.29
BUNDLE 100d
BUNDLE 100c
BUNDLE 100b
BUNDLE 100a
101
102
103
104
105
601d
601c
601b
601a
-1
1
0
-1
50
0.214
0
-2
3
1.5
25
0.107
-.3
0
1
1.5
30
0.179
1.5
0
-1
-1
30
0.5
606d
607d
608d
609d
606c
607c
608c
609c
606b
607b
608b
609b
606a
607a
608a
609a
0
0
0
0.193
0
0
0
0.096
0
0
0
0.161
0
0
0
.45
610d
611d
612d
613d
610c
611c
612c
613c
610b
611b
612b
613b
610a
611a
612a
613a
-12.9
12.86
0
-9.55
0
-12.86
19.29
11.3
-32.14
0
10.71
18.83
45
0
-30
-22.29
ASSET 1:
ASSET 2:
ASSET 3:
ASSET 4:
ASSET PROPORTIONS
BUNDLE SIZE
ALLOCATION VALUES
606e
607e
608e
609e
1
1
1
.1
REDISTRIBUTION VALUES
610e
611e
612e
613e
0
0
0
1.71
TRANSACTION AMOUNTS
MARKET MAKERS SHARE

FIG. 6A

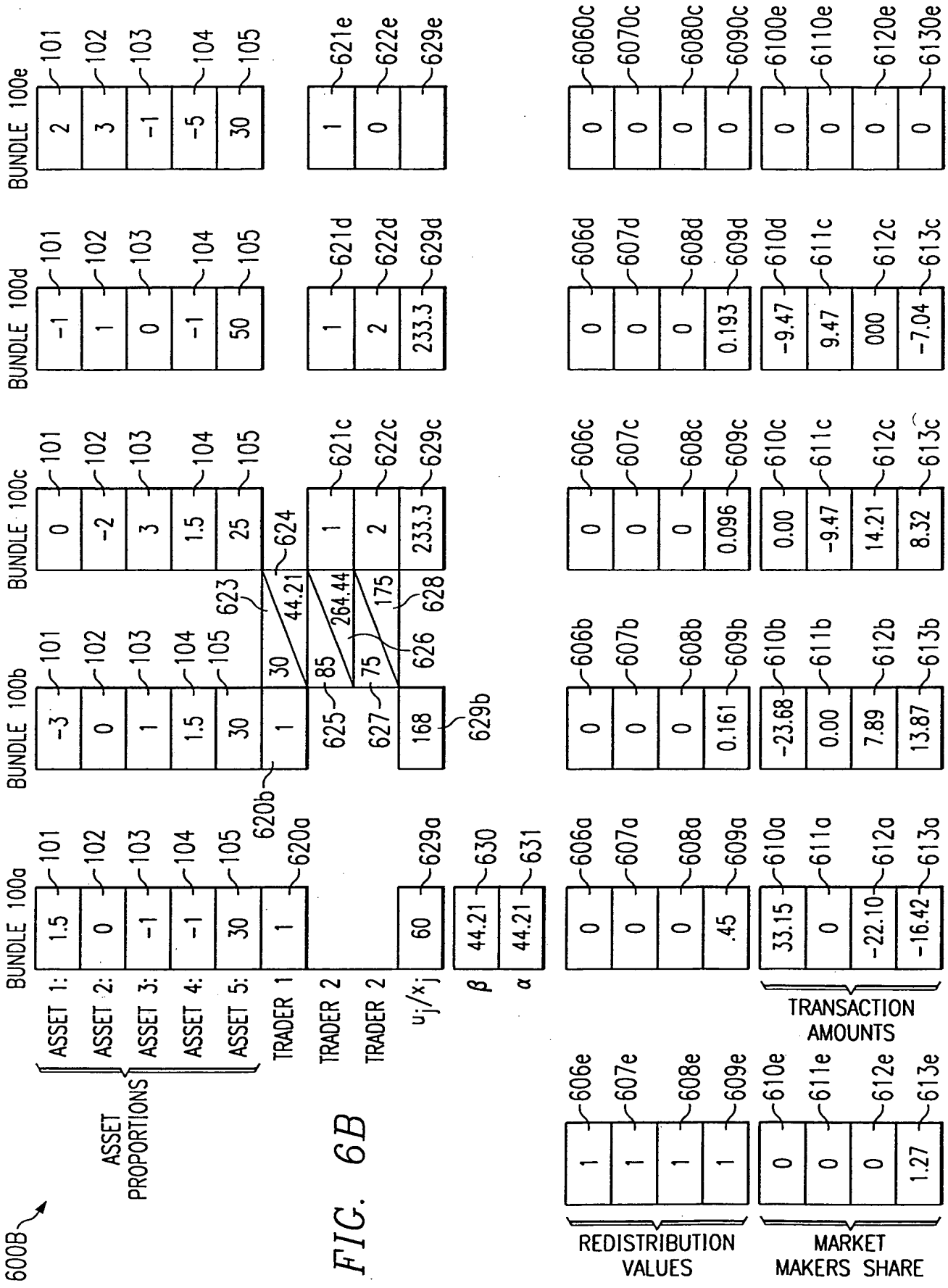

600B
BUNDLE 100a
BUNDLE 100b
BUNDLE 100c
BUNDLE 100d
BUNDLE 100e
ASSET PROPORTIONS
ASSET 1:
ASSET 2:
ASSET 3:
ASSET 4:
ASSET 5:
TRADER 1
TRADER 2
TRADER 2
u_j/x_j
β
α
TRANSACTION AMOUNTS
REDISTRIBUTION VALUES
MARKET MAKERS SHARE
620a
620b
623
624
625
626
627
628
629a
629b
629c
629d
629e
630
631
44.21
264.44
175
85
75
30
168
233.3
233.3
-23.68
0.00
7.89
13.87
33.15
-22.10
-16.42
0.161
0.096
0.193
.45
1.27

FIG. 6B

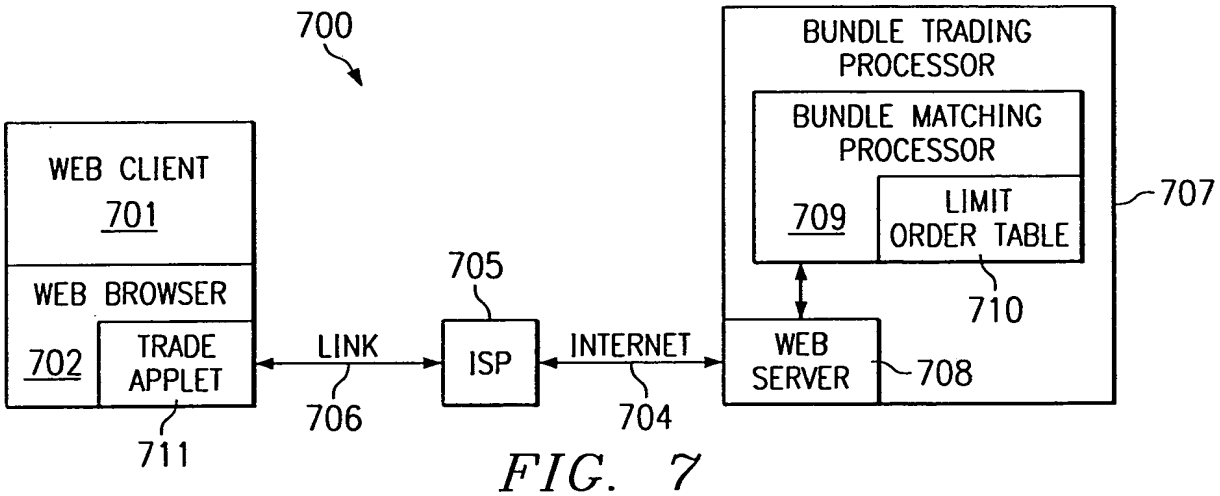

700
WEB CLIENT
701
WEB BROWSER
702
TRADE APPLET
711
LINK
706
705
ISP
INTERNET
704
BUNDLE TRADING PROCESSOR
BUNDLE MATCHING PROCESSOR
709
LIMIT ORDER TABLE
710
707
WEB SERVER
708

FIG. 7

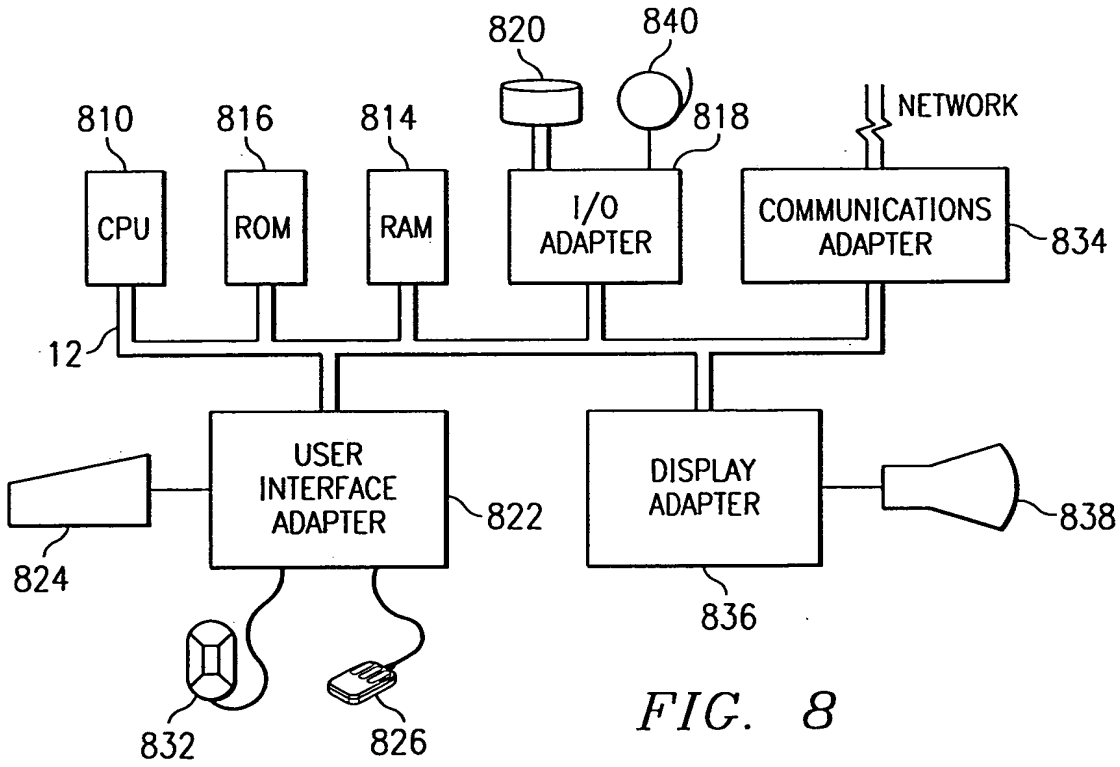

820
840
810
816
814
818
NETWORK
CPU
ROM
RAM
I/O ADAPTER
COMMUNICATIONS ADAPTER
834
12
USER INTERFACE ADAPTER
822
DISPLAY ADAPTER
838
824
836
832
826

FIG. 8

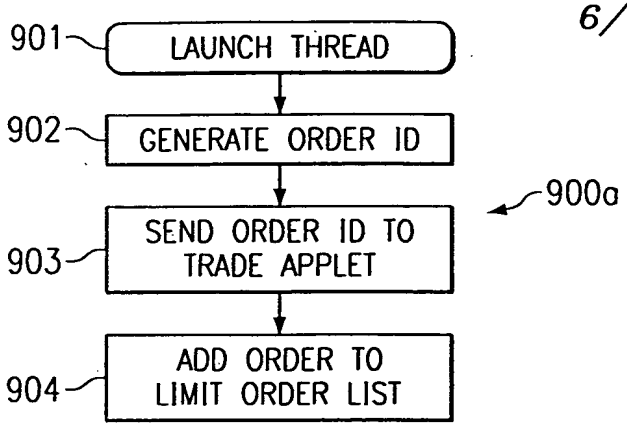


FIG. 9a

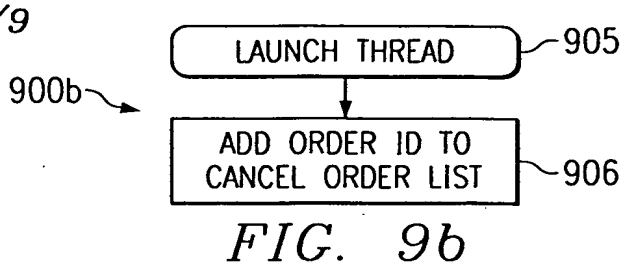


FIG. 9b

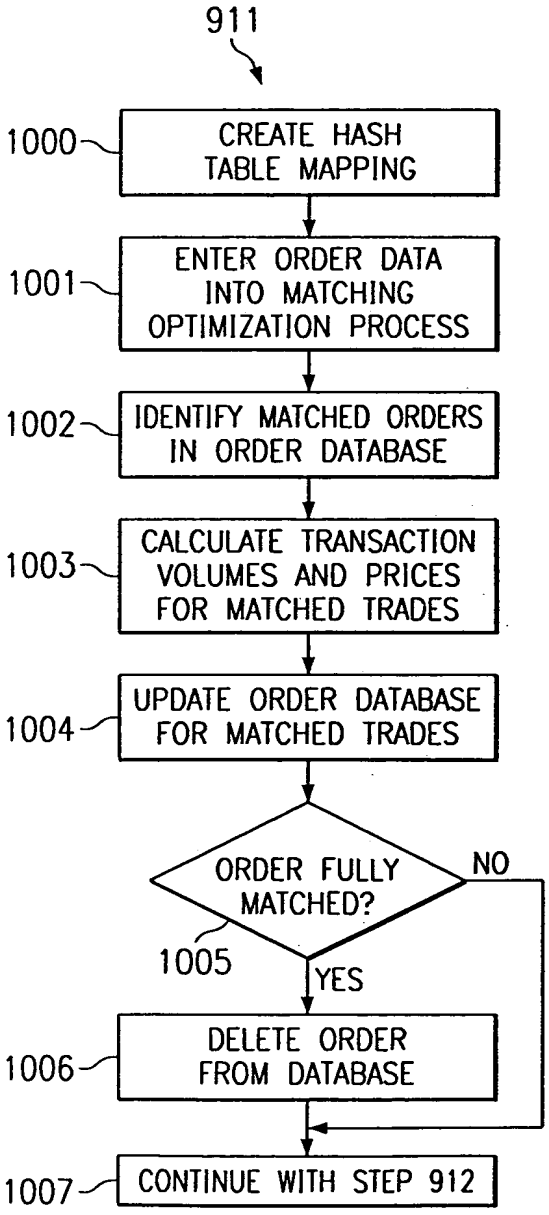


FIG. 10

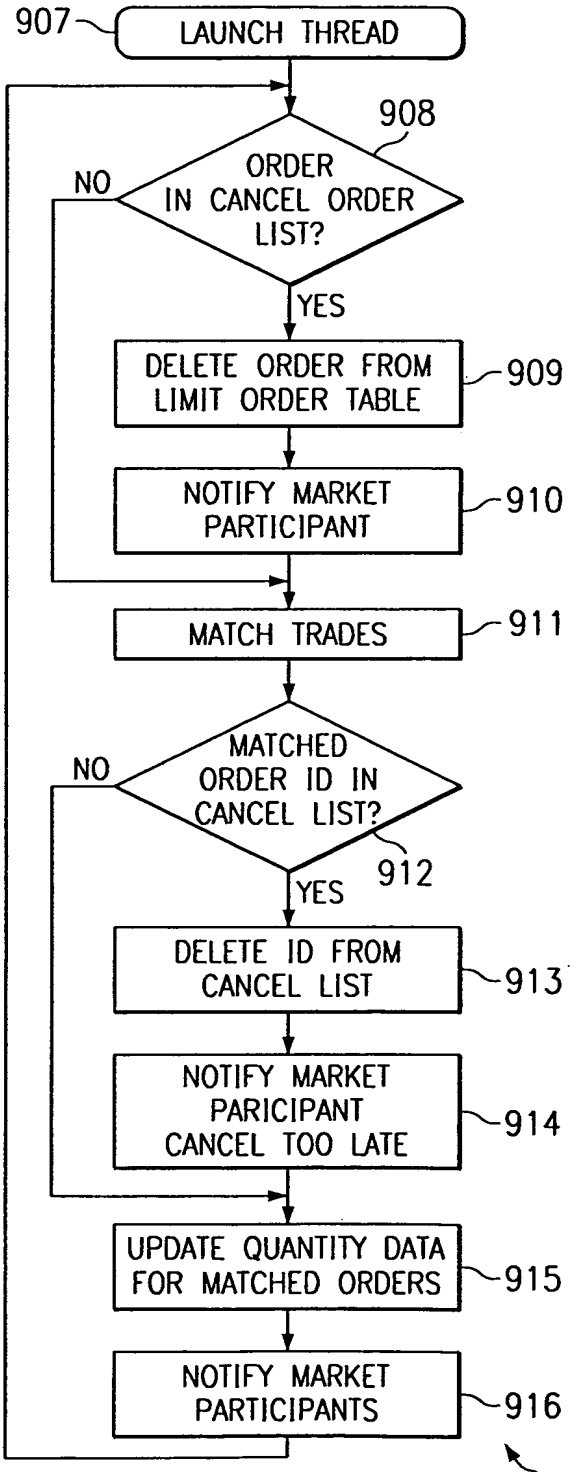


FIG. 9c

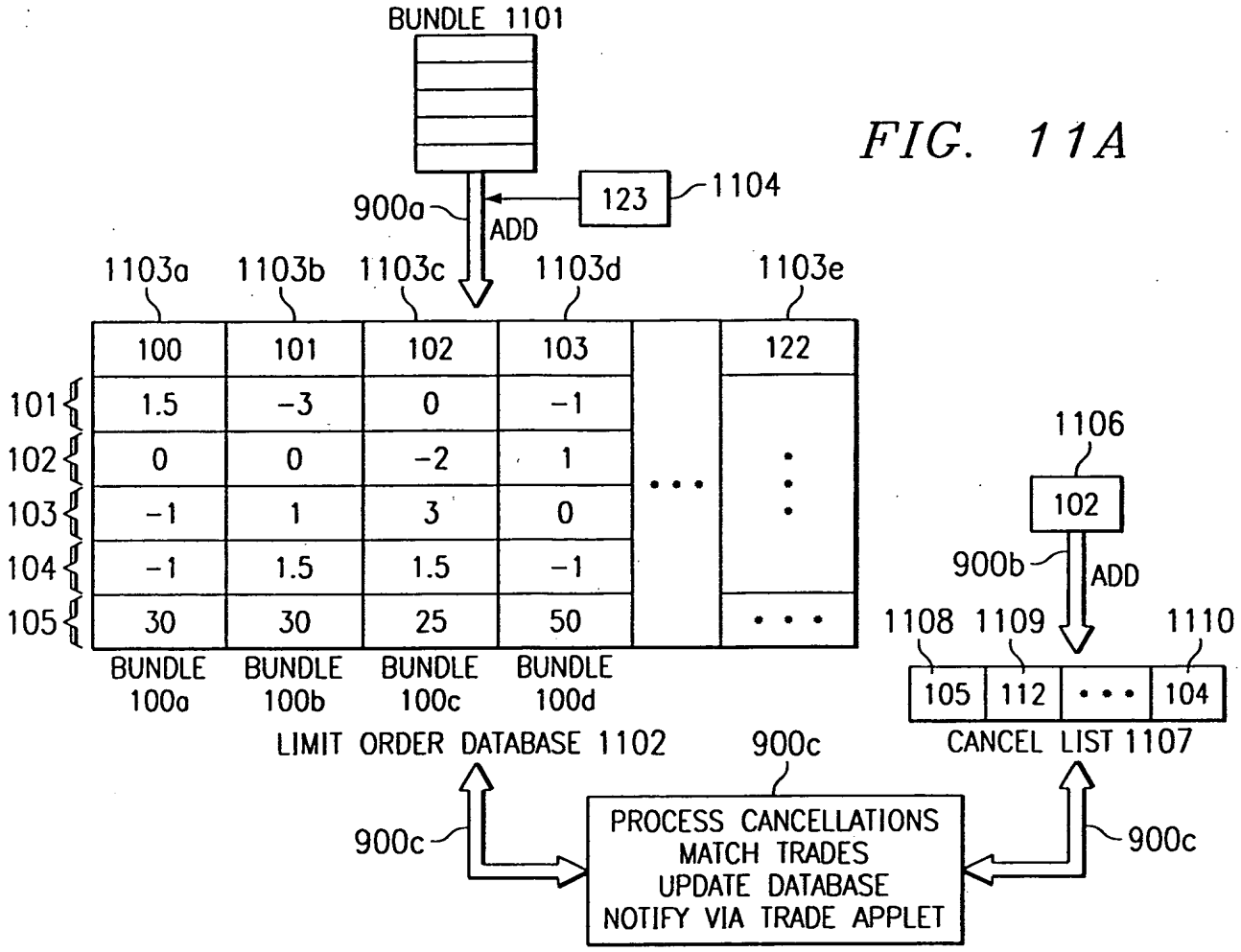


FIG. 11A

FIG. 12

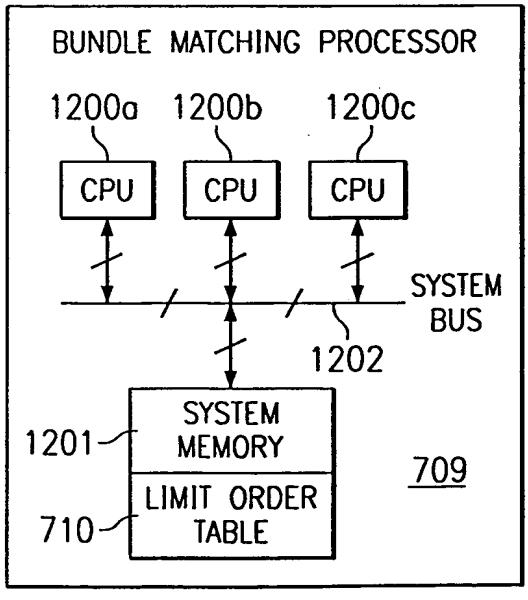


FIG. 13

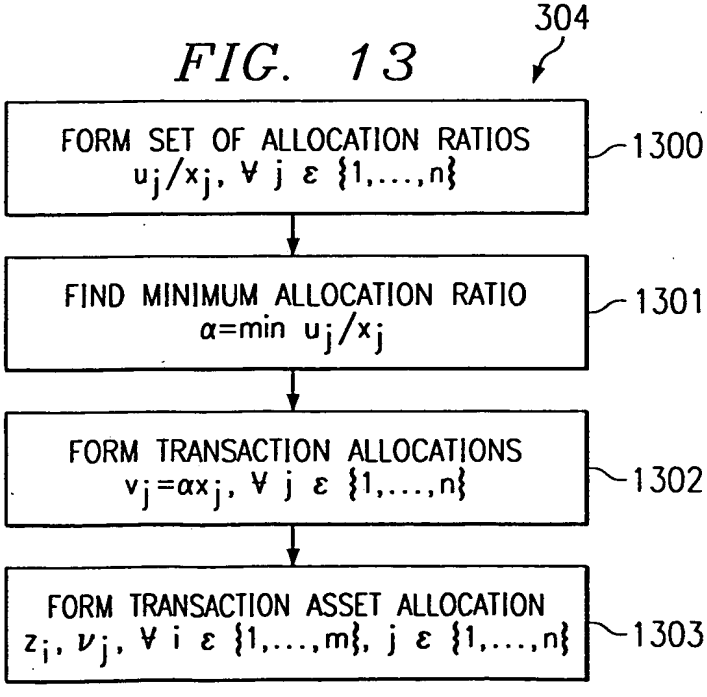


FIG. 11B

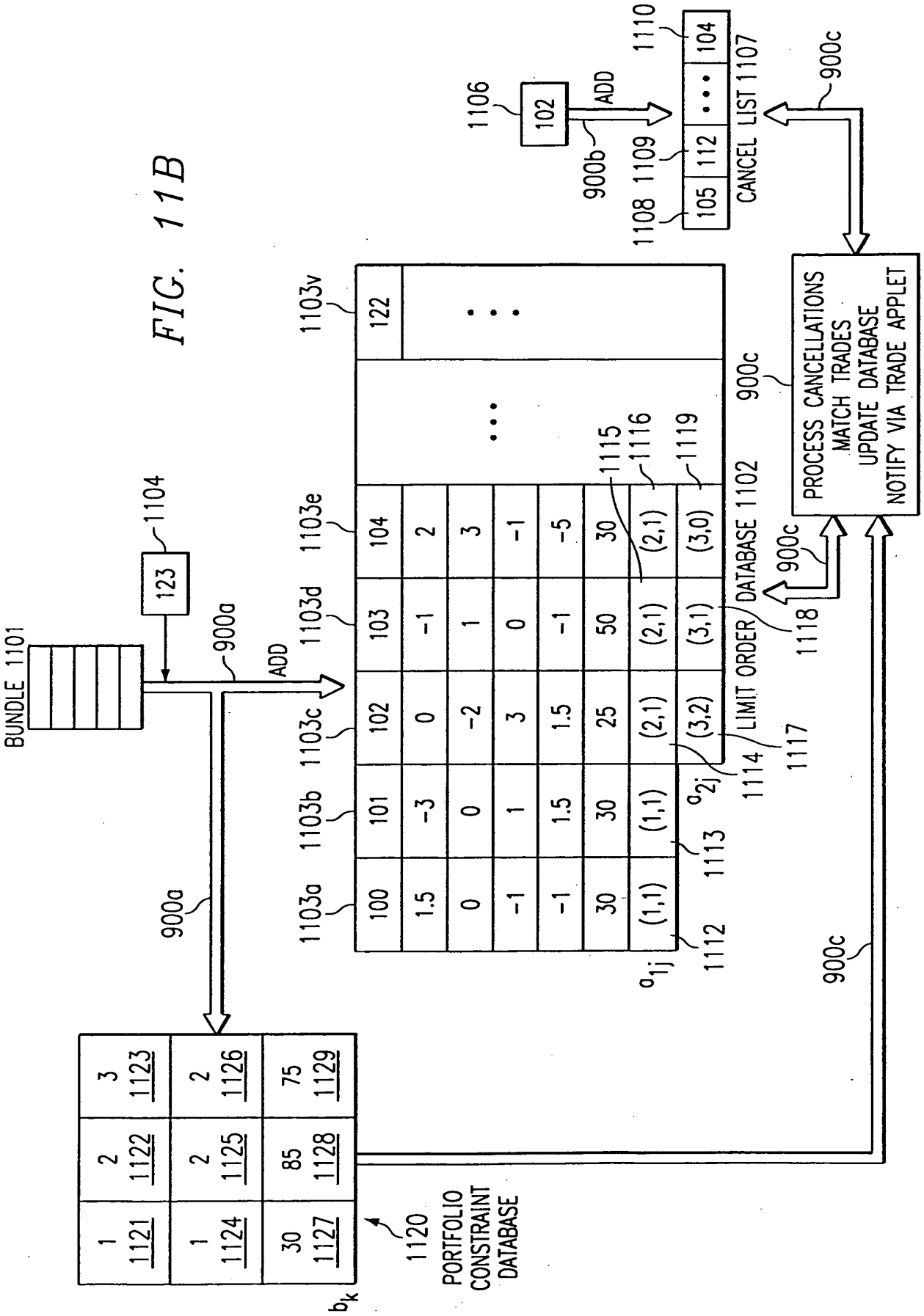
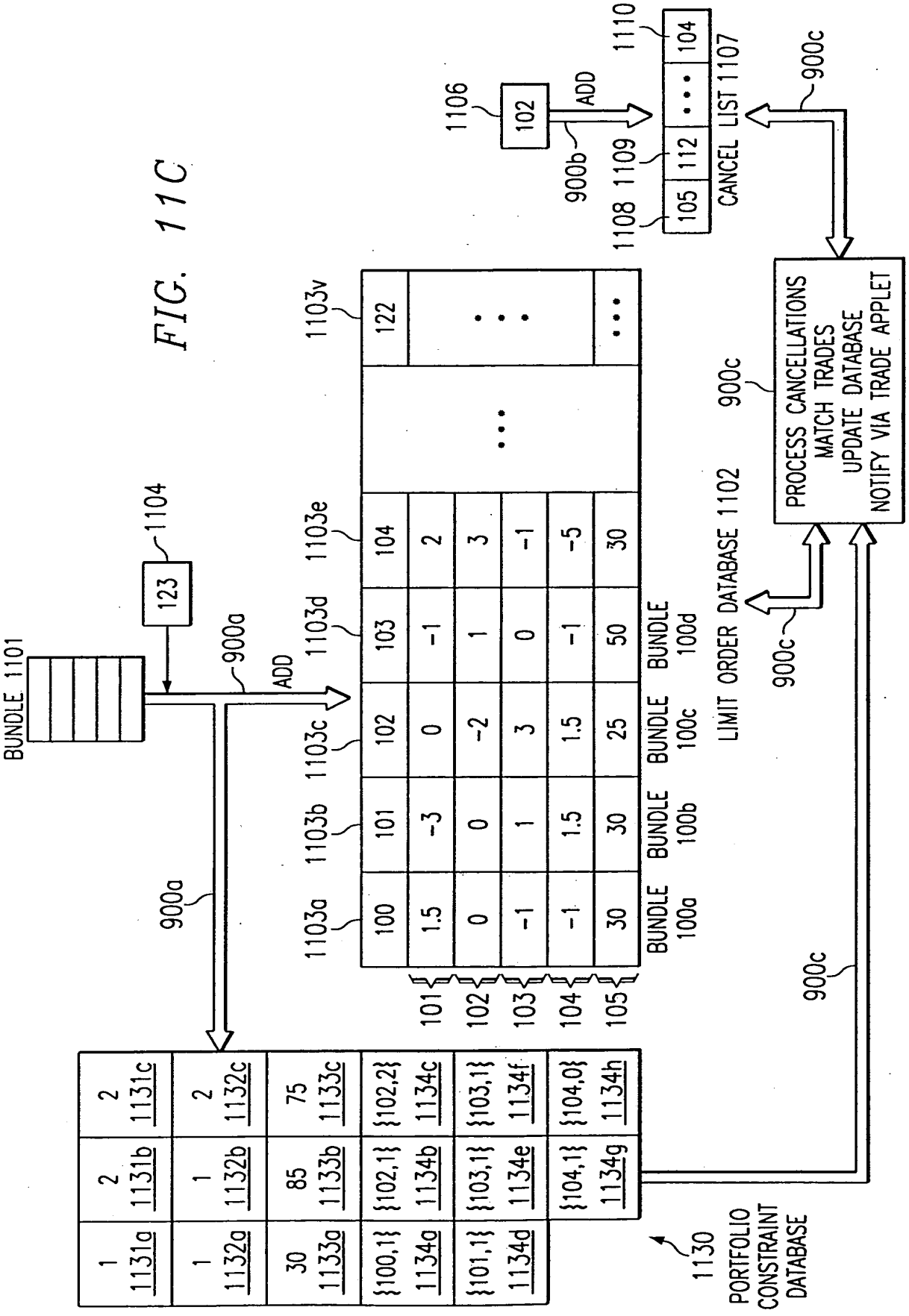

BUNDLE 1101
123
1104
900a
ADD
1103a
1103b
1103c
1103d
1103e
1103v
100
101
102
103
104
122
1.5
-3
0
-1
2
0
0
-2
1
3
-1
-1
1
3
0
-1
-1
1.5
1.5
-1
-5
30
30
25
50
30
(1,1)
(1,1)
(2,1)
(3,1)
(2,1)
(3,0)
1112
1113
1114
1115
1116
1119
LIMIT ORDER DATABASE 1102
1117
1118
900c
PROCESS CANCELLATIONS
MATCH TRADES
UPDATE DATABASE
NOTIFY VIA TRADE APPLET
1106
102
900b
1108
1109
105
112
104
1110
CANCEL LIST 1107
1121
1122
1123
1124
1125
1126
1127
1128
1129
1120
PORTFOLIO CONSTRAINT DATABASE

FIG. 11C


BUNDLE 1101
123
1104
900a
ADD
1103a
1103b
1103c
1103d
1103e
1103v
100
101
102
103
104
122
1.5
-3
0
-1
2
0
0
-2
1
3
-1
-1
3
0
-1
-1
1.5
-1
-5
30
30
25
50
30
BUNDLE 100a
BUNDLE 100b
BUNDLE 100c
BUNDLE 100d
101
102
103
104
105
900a
1106
102
900b
ADD
1110
104
1109
112
1108
105
CANCEL LIST 1107
900c
900c
PROCESS CANCELLATIONS
MATCH TRADES
UPDATE DATABASE
NOTIFY VIA TRADE APPLET
900c
LIMIT ORDER DATABASE 1102
900c
1131a 1 | 1131b 2 | 1131c 2
1132a 1 | 1132b 1 | 1132c 2
1133a 30 | 1133b 85 | 1133c 75
1134a {100,1} | 1134b {102,1} | 1134c {102,2}
1134d {101,1} | 1134e {103,1} | 1134f {103,1}
1134g {104,1} | 1134h {104,0}
1130
PORTFOLIO CONSTRAINT DATABASE